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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/618,741	07/18/2000	Thomas M. Hartnett	07206-118001	8640

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EXAMINER

DERRINGTON, JAMES H

ART UNIT PAPER NUMBER

1731

DATE MAILED: 04/08/2003

12

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/618,741

Applicant(s)

HARTNETT ET AL.

Examiner

James Derrington

Art Unit

1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 and 25-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 and 25-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11.
- ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

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Claims 1-11, 13-22 and 25-31 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant has not pointed out support for the recitation "chamber ... temperature ... greater than 1700 °C. The claims as currently worded include temperatures such as 2100 °C. Page 6 of the specification shows a temperature of 1700 -1900°C but not 1700 -2100°C.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-11, 13-22, 25-26 and 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maguire et al (4,686,070) and the prior art discussed in the specification paragraph bridging pages 1-2 in view of Serpek (1,030,929)

Maguire et al disclose the process of preparing ALON by subjecting a mixture of alumina and carbon to nitrogen gas at an elevated temperature (See Col. 2, lines 35-67). The independent claims have been amended to recite a temperature of greater than 1700 oC. In response, Maguire et al disclose ALON is formed at about 1750 °C (Col. 2, line 62). The instant specification explains the chemistry and temperature requirements for the formation of ALON from a starting mixture of alumina and carbon that is reacted with nitrogen gas. The instant specification (par. Bridging pages 1-2) explains that ALN is first formed by reaction at 1650-1750 °C and then the formed ALN

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reacts with alumina at about 1750-1850 °C to form ALON. It is submitted that the claims differ over this prior art by additionally reciting;

“dispersing” the alumina particles (claim 1),  
agitating the mixture of alumina and carbon in a chamber (claim 6),  
rotating the chamber (claim 8),  
agitating and removing (claim 14),  
agitating by rotating (claim 17),  
or continuously introducing and agitating (claim 25).

All of these manipulative steps are inclusive of employing a rotary furnace or heated rotary chamber for conducting the process of forming ALON by reaction of nitrogen gas with a mixture of alumina and carbon. Serpek disclose the process of introducing a mixture of alumina and carbon into a rotary reaction chamber or furnace where nitrogen gas is introduced for the formation of aluminum nitride. (See Fig.1 and paragraph bridging pages 1 and 2. This technique provides for even heating and insures more intimate contact with the gas (page 2, lines 5-8). It would have been obvious for one of ordinary skill in the art to have conducted the process of Maguire or the process discussed in the specification page 1, line 18 through page 2, line 2 with a rotary furnace in order to provide the advantages as set forth by Serpek.

It is recognized that both the instant claims and Maguire et al disclose the production of ALON while Serpek discloses preparing ALN. However as evidenced by the teachings of Maguire et al, ALN is first formed during reaction of alumina and carbon with nitrogen at about 1550 °C and subsequently at 1750 °C ALON is formed. Similar

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teachings at also shown in the specification pages 1 and 2. Thus it would have been obvious to use the temperatures recommended by Maguire et al for the formation of ALON if this is the material desired. Maguire et al show formation of bodies from ALON including transparent bodies (Col. 4, line 63) and the step of sintering while Serpek disclose the use of a continuous process with a hopper.

Applicant's arguments have been considered however they are not persuasive for the following reasons. First the examiner does not agree that the disclosure of Maguire et al requires two separate steps or that the cited references require a second rotary calciner. Maguire teaches that the preferred heat treatment is in two steps (Col. 2, lines 53-55) but the general process discussed at Col. 2, lines 36-52 does not require two separate steps and two different pieces of equipment. A reference must be considered for all that it teaches and not just preferred embodiments. The disclosed process as set forth at pages 1-2 of the specification is conducted within the temperature range (1650-1850 °C) at a first lower temperature stage (1650-1750 °C) and then at a higher temperature stage (1750-1850 °C ). The claims as currently written do not exclude two temperature stages. No patentable distinction is seen between the soak time of about 30 minutes and the approximately 40 minutes shown by Maguire (Col. 2, line 64) since the words "about" and "approximately" permit some tolerance. One of ordinary skill in the art would have been able to determine suitable ramp or temperature elevation rates needed to accomplish the desired objective of forming ALON.

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Claims 12 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maguire et al (4,686,070) in view of Serpek (1,030,929 as applied to claims 1-11, 13-22, 25-26 and 29 above, and further in view of the Abstract of JP403023269A or Dodds et al (5,925,584).

JP403023269A disclose that bodies having superior linear transmissivity can be produced by hot isostatic pressing. Dodds et al disclose hot isostatic pressing to be conventionally used in the art (Col. 10, lines 29-30) for densifying aluminum oxynitride containing materials (Col. 10, lines 27-41). It would have been obvious for one of ordinary skill in the art to use this technique with the process of Maguire et al as modified by Serpek for art recognized reasons. It does not appear that applicant has presented additional arguments in regards to this rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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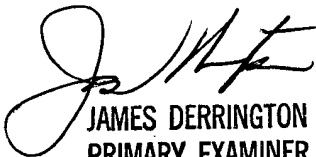
the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Derrington whose telephone number is 703 308-3832. The examiner can normally be reached on 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 703 308-1164. The fax phone numbers for the organization where this application or proceeding is assigned are 703 305-7718 for regular communications and 703 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.

jd  
April 6, 2003

  
JAMES DERRINGTON  
PRIMARY EXAMINER  
ART UNIT ~~137~~/1731